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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,990	03/08/2002	Kadri Nizar Jabri	122167	2602

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EXAMINER

KIKNADZE, IRAKLI

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 09/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/683,990

Applicant(s)

JABRI ET AL.

Examiner

Irakli Kiknadze

Art Unit

2882

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 May 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Objections

1. Claim 23 objected to because of the following informalities:

Claim 23, line 13 " said processor " should read -- said processing circuit --.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-25 are rejected under 35 U.S.C. 102(e) as being anticipated by Avanash et al. (US Patent 6,580,779 B2).

With respect to claim 1, Avanash teaches (see abstract; Fig. 1) a method of processing dual energy images comprising: obtaining a first image generated at a first energy level; obtaining a second image generated at a second energy level different

than the first energy level; pre-processing said first image and said second image; decomposing said first image and said second image to form a raw soft-tissue image and a raw bone image; post-processing the raw soft-tissue image to form a processed soft-tissue image; post-processing the raw bone image to form a processed bone image; display processing the processed soft-tissue image and the processed bone image (column 3; line 41 – column 5; line 51).

With respect to claims 2-4, Avanash teaches that the pre-processing includes performing: scatter correction on the first image and the second image; noise reduction on the first image and the second image; registration on at least one of the first image and the second image to correct motion artifacts (column 4; line 8-32).

With respect to claims 5-10, the post-processing the raw soft-tissue image includes: adjusting the contrast of the raw soft-tissue image to match a predetermined contrast; the post-processing the raw soft-tissue image includes performing noise reduction on the raw soft-tissue image; presentation processing on the raw soft-tissue image; adjusting the contrast of the raw bone image to match a predetermined contrast; performing noise reduction on the raw bone image; and performing presentation processing on the raw bone image (column 4; lines 8-48).

With respect to claims 11 and 12, the display processing includes displaying: at least one of the processed soft tissue image, the processed raw bone image and a standard image derived from the first image; the processed soft-tissue image, the processed raw bone image and the standard image in a timed sequence (column 8; lines 41-68).

With respect to claims 13 and 14, the display processing includes performing computer aided diagnosis on at least one of the processed soft-tissue image and the processed bone image and displaying results of said computer aided diagnosis; and designating display options for at least one of the processed soft-tissue image and the processed bone image (see claim 1).

With respect to claim 15, Avanash teaches a method of examining a structure (106) comprising: exposing the structure to an energy source (102) at a first energy level; acquiring a first image of the structure; exposing the structure to an energy source at a second energy level different than the first energy level; acquiring a second image of the structure (106); pre-processing said first image and said second image; decomposing the first image and the second image to form a raw soft-tissue image and a raw bone image; post-processing the raw soft-tissue image to form a processed soft-tissue image; post-processing the raw bone image to form a processed bone image; display (114) processing the processed soft-tissue image and the processed bone image (column 3; line 41 – column 5; line 51).

With respect to claims 16-18, the structure is a portion of a human; the acquiring the first image including using cardiac gating to acquire the first image at a specific point in a cardiac cycle. The acquiring the first image includes adjusting the first image in response to a detector correction. The acquiring the second image includes adjusting the second image in response to a detector correction (column 3; line 41 – column 4; line 8).

With respect to claims 20-23, the display processing includes: performing computer aided diagnosis on at least one of said processed soft-tissue image and said processed bone image and displaying results of the computer aided diagnosis; designating display options for at least one of the processed soft-tissue image and the processed bone image; and displaying the processed soft-tissue image, the processed raw bone image and a standard image derived from the first image in a timed sequence (see claim 1).

With respect to claim 23, Avanash teaches a dual energy imaging system comprising: an energy source (102) generating photons at a first energy level and a second energy level different than the first energy level; a detector (108) generating a first image representative of the photons at the first energy level passing through a structure and a second image representative of the photons at the second energy level passing through the structure; a memory (122) coupled to the detector (108), the memory (108) storing the first image and the second image; a processing circuit (110) coupled to the memory (122), the processing circuit (110) pre-processing the first image and the second image; post-processing the first image to form a processed first image; post-processing the second image to form a processed second image; a display device (114) coupled to the processing circuit (110), the display (114) device displaying one of the processed first image and the processed second image (column 3; line 41 – column 5; line 51).

With respect to claim 24, Avanash teaches dual energy imaging system comprising: energy means (102) for generating photons at a first energy level and a

second energy level different than the first energy level; detection means (108) for generating a first image representative of the photons at the first energy level passing through a structure and a second image representative of the photons at the second energy level passing through the structure; storage means for storing the first image and the second image; processing means for: pre-processing the first image and the second image; decomposing said first image and said second image to form a raw soft-tissue image and a raw bone image; post-processing the raw soft-tissue image to form a processed soft-tissue image; post-processing the raw bone image to form a processed bone image; display means for displaying (114) one of the processed soft-tissue image and the processed bone image (column 3; line 41 – column 5; line 51).


With respect to claim 25, Avanash teaches a computer program product for processing dual energy images, the product comprising: a storage medium readable by a processing circuit and storing instructions for execution by the processing circuit for: obtaining a first image generated at a first energy; obtaining a second image generated at a second energy different than the first energy level; pre-processing said first image and said second image; decomposing the first image and the second image to form a raw soft-tissue image and a raw bone image; post-processing the raw soft-tissue image to form a processed soft-tissue image; post-processing the raw bone image to form a processed bone image; display processing the processed soft-tissue image and the processed bone image (column 3; line 41 – column 5; line 51).

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irakli Kiknadze whose telephone number is (703) 305-6464. The examiner can normally be reached on M-F(8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (703) 308-4858. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


DAVID V. BRUCE
PRIMARY EXAMINER

Irakli Kiknadze
August 11, 2003
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